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United States Patent [19]

Peterson

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[54] **METHOD AND APPARATUS FOR PROVIDING SHORTEST ELAPSED TIME ROUTE AND TRACKING INFORMATION TO USERS**

[76] **Inventor:** Thomas D. Peterson, 1218 Rimer Dr., Moraga, Calif. 94556

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 436,892, May 8, 1995, Pat. No. 5,523,950, which is a continuation of Ser. No. 32,830, Mar. 10, 1993, abandoned, which is a continuation of Ser. No. 649,599, Feb. 1, 1991, abandoned.

[51] **Int. Cl.⁶** G06F 165/00

[52] **U.S. Cl.** 701/209; 701/213; 701/117; 340/905; 340/989

[58] **Field of Search** 701/117, 119, 701/200, 202, 208, 209, 210, 213; 340/905, 988, 989, 990, 993, 995

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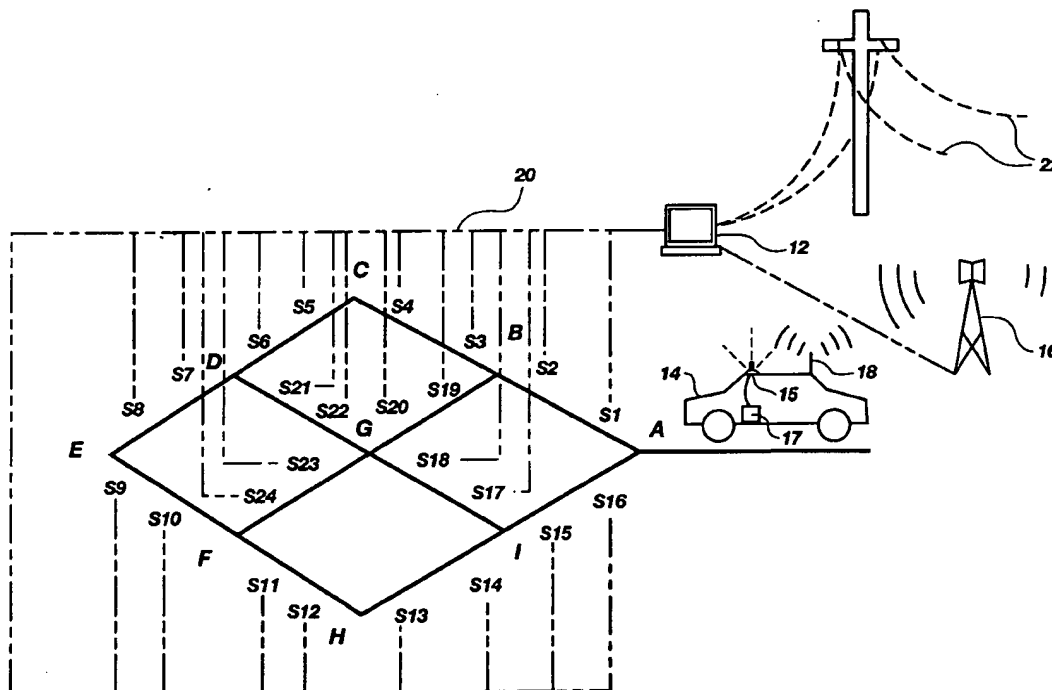
Primary Examiner—Gary Chin

Attorney, Agent, or Firm—K. S. Cornaby

[57] **ABSTRACT**

A method and apparatus for determining and communicating shortest elapsed time route information to users wherein information of desired origin and destination combinations is received from the users in a central processor or computer, instant rates of travel on multiple route segments interconnecting various possible origins and destinations being monitored and transferred to the central processor which then calculates the route segment or segment combination providing shortest elapsed time routes for each origin-destination combination and transmitting that information to the respective user. Communication between the central processor and the users is preferably by telephone and more preferably by cellular telephone.

15 Claims, 9 Drawing Sheets



d transmit to the users the shortest elapsed time route information for the actual time when the individual vehicle will be traveling between its origin-destination combination.

Brief Summary Text - BSTX (27):

Thus, the present invention provides a method and apparatus for providing individual vehicles or drivers with necessary information for determining the most rapid route between a selected origin-destination combination. The invention relies upon sensors (sensors would include tag readers and differential video imagery) or probes (which would include velocities, or changing position data feed back from vehicles from which elapsed times can be calculated. Further example is the hand off from cell to cell in a cellular phone system) along the various route segments in order to transmit instantaneous rate information for those segments to a central computer. The central computer receives the information from all of the sensors and probes along the various route segments and applies that information to input equations or algorithms for determining the actual elapsed time, under present conditions, between points defining each route segment. Typically, those points are selected as principal arterial highway intersections, nodes and the like. Algorithms are then applied within the central computer for comparing actual elapsed times for the various route segments and aggregating that information in order to determine the shortest elapsed time route between any point of origin and destination.

Brief Summary Text - BSTX (28):

As noted above, the central computer is also equipped to continuously